What is claimed is:

1. A method for determining an intraperitoneal volume during peritoneal dialysis, which comprising the steps of

passing peritoneal solution from a peritoneal cavity in a first circuit adjacent a first side of a semipermeable membrane;

passing dialyzing fluid in a second circuit adjacent a second side of the semipermeable membrane;

measuring the concentration of an endogenous substance that passes through a peritoneum into the peritoneal solution in the peritoneal cavity; and

determining the intraperitoneal volume from the variation in the concentration over time.

2. The method according to claim 1, wherein the measuring step further comprises:

measuring the concentration c_0 of the endogenous substance in the peritoneal solution at a time t_1;

withdrawing or delivering a predetermined volume ΔV of fluid in the first circuit;

measuring concentration c_1 the of the endogenous substance in the peritoneal solution at a time t_2; and

wherein the determining step further comprises:

determining the intraperitoneal volume from the equation:

$$V = \frac{\Delta V}{1 - c_0 / c_1}$$

3. The method according to claim 2, which further comprises the step of:

determining an ultrafiltration rate $V(t_1)/t_1$ from the variation in intraperitoneal volume in the time $t_1 - t_2$;

withdrawing fluid from the first circuit at the ultrafiltration rate.

4. The method according to claim 3, which further comprises the step of:

determining continuously the variation in intraperitoneal volume during peritoneal dialysis for determination of the ultrafiltration rate.

5. The method according to claim 1, wherein the endogenous substance is albumin.

6. An apparatus for peritoneal dialysis comprising:

a dialyzing fluid source;

a dialyzer, the dialyzer divided by a semipermeable membrane into a first compartment and a second compartment, where the first compartment is part of a first circuit for peritoneal solution and the second compartment is part of a second circuit for dialyzing fluid;

a balancer for withdrawing or delivering fluid in the first circuit;

a measuring unit configured to determine the concentration of an endogenous substance in the peritoneal solution, which during peritoneal dialysis passes through the peritoneum into the peritoneal cavity; and

a calculating and evaluation unit configured to determine the intraperitoneal volume from a variation in concentration of the endogenous substance.

7. The apparatus according to claim 6, further comprising:

a control unit for controlling the balancer, the measuring unit, and the calculating and evaluation unit;

wherein the control unit controls the measuring unit such that a first concentration c_0 of the endogenous substance in the peritoneal solution is measured at time t_1, and a second concentration c_1 of the endogenous substance in the peritoneal solution is measured at time t_2; and

wherein the control unit controls the balancer such that between time t_1 and time t_2 a predetermined volume ΔV of fluid is withdrawn or delivered in the first circuit.

8. The apparatus according to claim 7, wherein the control unit controls the calculating and evaluation unit to determine the intraperitoneal volume from the concentrations c_0 and c_1 and the volume ΔV.

9. The apparatus according to claim 7, wherein the calculating and evaluation unit is configured to determine a ultrafiltration rate $V(t_1)/t_1$ from the variation in intraperitoneal volume in

the time period from time t_1 to time t_2, and wherein the control unit controls the balancer to withdraw or deliver fluid in the first circuit at the ultrafiltration rate.

10. The apparatus of claim 6, wherein the endogenous substance is albumin.